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Emerging Market Queries in Finance and Business

The evolution of Romania's financial and banking system

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Abstract

In this paper I analyzed Romania's banking system evolution in the period 2000 – 2012, through a research both theoretical and empirical. The database is collected from monthly Reports of National Bank of Romania and is classified into categories as follows: key prudential indicators, banking risk information, loans and commitments granted by banks, loan portfolio classification and key ratio for minimum reserves. Afterwards, those indicators are framed through CAMELS approach. The research period was divided into pre-crisis period - before 2007 and post-crisis period - after 2007 and up to the present. The 2007 year was used as a crossroad point because starting with this year it was visible the downturn of the economic and financial evolution in Romania's system and also at global level. The research objectives are to observe the evolution of the banking system in Romania in the prior crisis period as well as after the crisis set in and to identify possible correlations and contagion effects of the selected indicators. Concluding, there are cross sectional influences between selected banking indicators which might gave us a warning signal regarding the evolution of the banking system.

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Keywords: banking system; liquidity; solvability; capital; assets;

1. Introduction

This research analyzes the evolution of Romania's banking system in the period 2000-2012. The banking indicators used are classified into five categories: key prudential indicators, banking risk information indicators, information regarding loans and commitments granted by banks, loan portfolio classification as function of exposures and allowances categories and key ratios for minimum reserves. On April 2013, International Monetary Fund (IMF) adjusted Romania's forecast of economic growth for 2013, from 2.5% to 1.6%. According to World Economic Outlook Report, Romania's economy will move with 2% next year and

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in 2018 will reach a percent of 3.5%. IMF reduced also global economy growth with 0.2 pp at 3.3% and for the Euro Area it is anticipated a contraction of 2.8% for gross domestic product. IMF anticipates a medium inflation for Romania of 4.6% during 2013, a current account deficit of 4.2% of gross domestic product and a unemployment rate of 7%.† In the above conditions, there are obvious the difficulties which affects the existence and development of Romania's banks. This paper is organized as follows. After the Introduction, Second section presents us literature review of banking system, in order to identify better and to monitor its strengths and to improve measuring, predicting and managing the vulnerabilities of the financial system. Third section came with the data set used in the analysis, presenting the countries in the sample, the variables analyzed and the period of research. Also, there are presented the transformations of the variables, in order to obtain comparable results. Fourth section presents us the methodology used and also shows the results, presenting the predictions and their interpretations. Last section concludes about the utility of this model in actual financial environment and summarizes the main ideas. Detailed description is available in the five appendixes available at request.

2. Literature Review

The analysis of Stephen G. Cecchetti, Marion Kohler and Christian Upper based on 40 systemic banking crises emphasizes that last financial crises is computed from a wide range of economic factors ‡. The paper "This Time is Different: A Panoramic View of Eight Centuries of Financial Crises" includes African, Asian, European, Latin American countries, North America and Oceania, in the period 1800-2006 and threat external debt, domestic default, banking crises, currency crashes and inflation excesses, by constructing a composite index of financial instability that is multidimensional, concluding that "financial crises are more a way of life affecting all"§. Another paper of Carmen M. Reinhart and Kenneth S. Rogoff is focused on banking crises and highlights that crises are more severe for the financial centers like UK, USA and France. They analyze for the first time in the literature the role of "housing prices" variables and find similarities of the behavior of frequency and duration of banking crises between developed and middle-income countries, highlighting that most countries experience a surge in debt in the wake of a financial crisis, with real central government debt increasing 86% on average during the three years following the crisis.** Some Romanian economists used a set of prudential indicators and the aggregate monetary balance sheet to find out that the level of risk was manageable, even that accelerated during 2009 and 2010 and that the exposure of Romania's banks to foreign funds constituted an important source of risk.†† Professor Albulescu Claudiu Tiberiu build an early warning system based on the banking ratings deterioration using CAAMPL approach for the period 1998 – 2006 and concluded that rating degradation and calculation of probability of banking financial distress can be determined

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† IMF report

‡ Cecchetti, S.G., M. Kohler and C. Upper (2009),"Financial Crises and Economic activity", NBER Working Paper Series

§ Reinhart, C.M. and K.S. Rogoff(2008),"This Time is Different: A Panoramic view of eight Centuries of Financial Crises", NBER Working Paper

** Reinhart, C.M. and K.S. Rogoff (2008), "Banking crises: An equal opportunity menace", Working paper 14587

†† Mitrica Eugen, Moga Liliana, Stanculescu Andrei (2010), "Risk Analysis of the Romania Banking System – an Aggregated Balance Sheet Approach"

through an early warning system. ‡‡ Last crisis revealed important aspects in the current global architecture and official mechanism that facilitate global financial instability. Current crises emphasizes that the surveillance for crises prevention must be more rigorous, with a better incorporation of financial sector and regulatory issues, with better information regarding cross-border spillover and systemic risks. If prior to the current crises were considered just vulnerabilities in emerging market economies because they are supposed to be more fragile, now there are taken in consideration the vulnerabilities in advanced economies too, because they could create broader distress through cross border linkages.§§ The G-20 Framework for Strong, Sustained and Balanced Growth and the Mutual Assessment Process reveal the need for policymakers to take care about the multilateral dimensions of the countries.

3. Dataset

I construct a dataset of sixty-six indicators for Romania banking system in the period 2000 – 2012. The variables are at monthly frequency and are collected from National Bank of Romania Monthly Reports. Because there is no database which contains those indicators available for such period and in this frequency, the collection was difficult. The banking indicators used are classified into categories as follows: key prudential indicators (solvability ratio, equity ratio, general risk rate, interbank loans and investments/ total gross assets, loans granted to non-banks customers/total gross assets, net overdue and doubtful loans/total net loans portfolio, net overdue and doubtful claims/total net assets, net overdue and doubtful claims/attracted and borrowed funds, credit risk rate, liquidity ratio and non performing ratio), banking risk information (total amounts due, total amounts overdue, debtors number, overdue debtors number, number of CRB interrogations, number of debtors reported by two or more banks and number of loans granted and commitments assumed by banks), loans and commitments granted by banks (ownership exposures, currency exposures, activity sector exposures, maturity exposures, exposure categories), loan portfolio classification (exposures and allowances categories) and key ratio for minimum reserves. For the first and last category of indicators there were used rates. For the others there was used the first difference of the values (RON mio.) registered by the variables. This means that the variables are standardized.

4. Methodology and Results

I choose to split the analysis between two periods: pre-crisis and post-crisis. 2007 year was considered a benchmark of the turmoil at local and global level as well. Starting with this point, accumulated increases transformed fast into large decreases or even losses. Using this split of the research period it was possible to analyze the evolution of each indicator and to identify the downturn point for each indicator. Also, this method allows us to identify the first variables influenced by the financial crisis and the cross section influences transmitted to the other selected variables. The recent financial crisis highlighted the need to a rigorous monitoring of the financial system and to a better incorporation of the banking system in the policy measures. In order to determine the overall condition of the Romanian banking system and to identify its strengths and weakness, the indicators collected were framed through a CAMELS approach. This method was used to help us

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‡‡ Albulescu, Claudiu Tiberiu and Coroiu Sorina Ioana (2011), "Early Warning System for the Romanian Banking Sector: The CAAMPL aaproach"
§§ Kato,T.(2010), "Early Warning Systems and Their Role in Surveillance", Deputy Managing Director, International Monetary Fund

identifying which of the CAMELS aggregate component was most adversely affected by the economic and financial conditions.

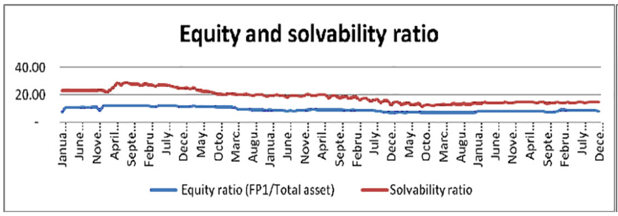
Table 1 CAMELS classification

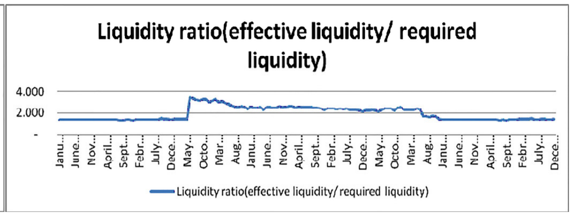
Capital adequacy	Solvability ratio
	Equity ratio
	Key ratios for minimum reserve requirements: RMO for RON and RMO for other currencies
Assets quality	General risk ratio
	Interbank loans and investments/ Total gross assets
	Loans granted to non-banks customers/ Total gross assets
	Net overdue and doubtful loans/ Total net loans portfolio
	Net overdue and doubtful claims/ Total net assets
	Net overdue and doubtful claims/ Attracted and borrowed funds
	Credit risk ratio
	Non-performing loans
	Total amounts due and overdue
	Debtors and overdue debtors number
	CRB Interrogation numbers
	Number of debtors reported by two or more banks
	Number of loans granted and commitment assumed by banks
	Loans granted and commitments assumed by bank to private ownership companies, to state ownership companies, to mix ownership companies, companies with foreign capital participation, to companies with foreign capital participation, to companies with cooperative ownership, to individuals, to other types of ownership
	Loans granted and commitments assumed by bank to industry, to services, to construction, to agriculture, forestry and fishery, to activities of banking financial institutions and pension houses, to public administration, education and health, to individuals
	Treasury loans, Equipments, stock loans, commitments assumed in a relation to a non-banking individual or legal persons, exports, commercial, real estate and other loans, bonds
	Short term (<12 months), Medium term (1-5 years) and Long term (>5 years) loans granted and commitments assumed
	Total exposure of loans granted to non-banking customers and banks and related interest classified in Standard, Observation, Sub-standard, Doubtful and Loss category
Management structure	State banks and with state major ownership
	Private banks and with private ownership
	Banks Romanian legal persons
	Branches of foreign banks
Earnings	Total provision for Standard, Observation, Sub-standard, Doubtful and Loss category
Liquidity and funding	Liquidity ratio (Effective liquidity/ Required liquidity)
Sensitivity to market risk	Loans granted and commitments assumed by bank in RON currency, EUR currency, USD currency and other currency

Capital adequacy provides a cushion to fluctuations in earnings, so that banks continue to function even in loss or small earnings level. It helps to identify, reduce and provide protection against the risk of default of the banking system. Maintaining an adequate level is a critical element for banks. Assets quality is used as a function which based on the present conditions can determine the future deterioration or improvement of banking system conditions. Management is a forward looking indicator and is a key indicator which assesses the company's ability to diagnose and respond to financial stress. Earnings quality depends on the system ability to manage the assets and liabilities, to earn an appropriate return and increase capital. Liquidity- Assets and liabilities management- is the process of evaluating, monitoring and controlling balance sheets risk. It is assessed in my research through the ratio between effective liquidity and required liquidity. Sensitivity to market risk reveals the degree to which changes in interest rates and foreign exchange rates can adversely affect the earnings of a financial institution.

4.1. Key prudential indicators

Key prudential indicators used are solvability ratio, equity ratio, general risk rate, interbank loans and investments/ total gross assets, loans granted to non-banks customers/total gross assets, net overdue and doubtful loans/total net loans portfolio, net overdue and doubtful claims/total net assets, net overdue and doubtful claims/attracted and borrowed funds, credit risk rate, liquidity ratio and non performing ratio. Solvability ratio average for the pre-crisis period was of 21.7%, while for the post-crisis period the average ratio decreased with 64% up to 13.9%. The equity ratio average ratio registered a decreased of 75% in the post-crisis period in comparison to pre-crisis period up to the level of 7.63%. The average ratio of effective liquidity/ required liquidity decreased with 81% in the two research periods. From the average level of 2.1 registered in the pre-crisis, liquidity ratio reach the average level of 1.69 in the post-crisis period. During this research analysis it was observed the inverse relationship between the ratio of interbank loans and investments/total gross assets and the ratio loans granted to non-bank customers/total gross assets. The interbank loans and investments/total gross assets ratio registered and average level of 34.94% in the pre-crisis period and 20.07% in the post-crisis period, registering a decrease of 42.54%. The ratio of loans granted to non-bank customers/total gross assets registered an average of 43% in the pre-crisis period and registered an increase of 41.11%. The correlation between the decrease of interbank loans and investments and the increase of loans granted to non-banks highlight the risk to which the banking system is exposed granting more loans to non-banking customers.

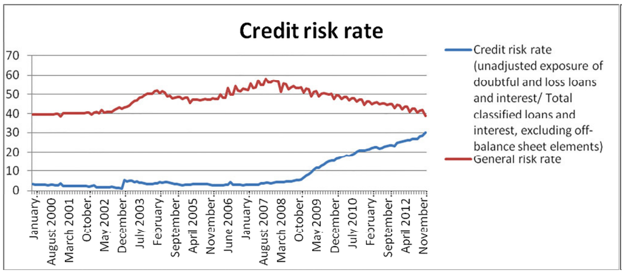


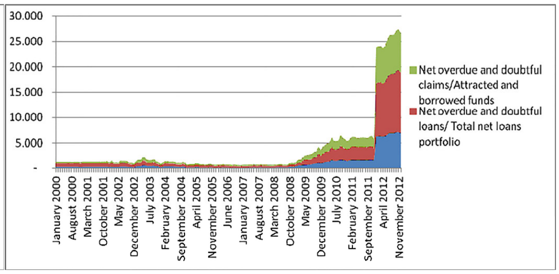


*Source National Bank of Romania, own calculations

Fig 1 Equity and solvability ratio Liquidity ratio

Another important relationship identified during the research was the inverse relationship between credit risk rate and general risk rate. While the average of general risk rate increased only with 3% from pre-crisis period to post-crisis period, the average of credit risk rate increased by 4.48 times during the two research periods, increase which should represent a warning signal.





*Source National Bank of Romania, own calculations

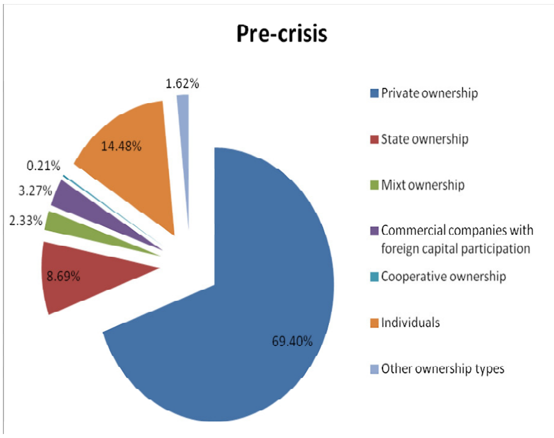
Fig. 3 Credit risk rate and General risk rate Net overdue and doubtful claims and loss ratios

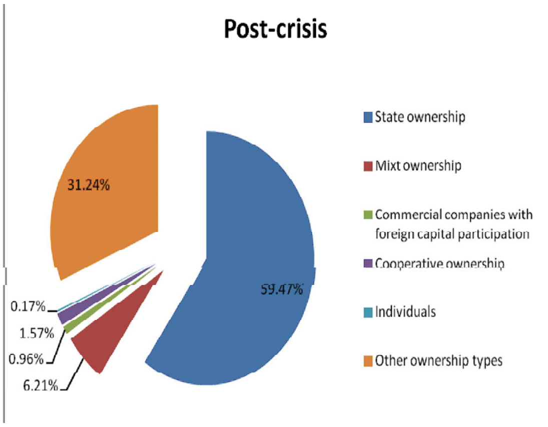
4.2. Banking risk information indicators

Banking risk information indicators used are total amounts due, total amounts overdue, debtors number, overdue debtors number, number of CRB interrogations, number of debtors reported by two or more banks and number of loans granted and commitments assumed by banks. In the pre-crisis period the overdue amounts represents 3.55% from total amounts due. In the post-crisis period the percent increase at 5.43%, in the context in which cumulated overdue amounts doubled at RON 762,539 mil and total due amounts increased with 65%, registering the level of RON 14,054,703 mil. In comparison with post-crisis, total number of debtors increased by 246.7% and the total number of overdue debtors increased by 739.1%.

4.3. Loans granted and commitments assumed by banks

Ownership structure remained almost the same based on the average values registered in the two periods. On average, there is an increase of 3.27% of private banks and an increase of 0.63% of Romania's legal person banks. Currency structure of the loans reveals the increase of exposures in foreign currency as EUR an USD, against the decrease of local currency exposures. In the above graphs it is presented the evolution of loans for each sector: industry, services, construction, agriculture, forestry and fishery, activities of banking financial institutions, public administration, education and health, individuals.





*Source National Bank of Romania, own calculations

Fig. 5. Ownership structure pre-crisis period

Fig. 6. Ownership structure pre-crisis period

In Romania there are the following types of banks: state banks and with state major ownership, private banks and with private capital, banks of Romanian legal person and branches of foreign banks. The weight of those types remained relatively the same for the two periods. Regarding the type of risk for loans there are: treasury loans, equipment and stock loans, commitments assumed in relation to a non-banking individual or legal person, loans for exports, commercial loans, real estate loans, other loans and bonds. Total amounts of loans registered in the prior-crisis period amounts of RON 5,251,413 mld. From this amount 36.72% represent short term loans, 32.43% represent medium term loans and 30.83% represents long term loans. In the post crisis period, from the total cumulated amount of RON 16,030,769 mld 21.02% represents short term loans, 27.28% represent medium term loans and 51.69% represent long term loans. Comparing the two periods it is observed the tendency of granting long term loans in comparison to short term loans. Total amounts of loans in the post-crisis period registered a level 3.05 times greater than in comparison with the total amount of loans for the pre-crisis period.

4.4. Loan portfolio classification: total exposures and total provisions

Total exposure for loans granted to non-banking customers and banks and related interest, registered in the pre-crisis period a total cumulated level of RON 1,309,846.30 mld. and in the post-crisis period total cumulated level of RON 4,175,722.54 mld. This accelerated increase highlights that the exposure to which the banking system is exposed is 3.19 times greater in the actual difficult environment then in the pre-crisis period. Another important aspect is the increase of the exposures classified in sub-standard, doubtful and loss categories. The cumulated amounts registered in the post-crisis period for the sub-standard, doubtful and loss exposures are 6, respective 7.03 and 24.49 times greater than the level registered in the pre-crisis period. This increase of exposures determined also an increase in the level of provisions. If in the 2000 – 2007 period there were registered cumulated provisions of RON 65,481.53 mld, in the next five years there were registered provisions amounting RON 1,208,961.4, level which is 18.46 times greater in comparison with previous period. The level of provisions constituted for loss provisions in the post-crisis period was 25.36 times greater than the prior period.

4.5. Minimum compulsory reserves

Minimum compulsory reserve rate is one of the monetary policy indicators and has different values for local currency and foreign currencies. For the entire research period it is visible the inverse relationship between those two indicators. The average for the pre-crisis period for minimum compulsory reserves rate in local currency is of 21%, following that in the post-crisis period it registers a level of 16%. This happened in a context in which the average for the minimum compulsory reserves in foreign currencies registers a level of 27.82% in the pre-crisis period and a level of 28.16% in the post-crisis period. While the RMO for local currency registered a decrease of 24% the RMO for foreign currencies increased with 1%.

5. Conclusions

During this research it was observed that the indicators behavior was different. For the category of key prudential indicators, crisis appearance was visible through decreases of equity ratio, solvability ratio, liquidity ratio, increase of loans granted to non-banks customers, credit risk rate, increase of net overdue and doubtful claims, increase of net overdue and doubtful loans, increases of general risk rate and decreases of the interbank loans. All the indicators of the banking risk information category revealed accelerate increases in the years 2007 – 2009. Loans granted and commitments assumed by the banks revealed high changes in the post-crisis period in the ownership structure, currency structure, activity sector, risk type and term of granting. According to OECD and NBR, Romania is ranked on third place in the European Countries strongly affected by non-performing loans, their weight in total loans portfolio for the last three and a half years being triple and reaching a percent of 18.2% at the end of 2012.*** The analysis also highlights the increase of exposures for non-bank customers and the increase of provisions, which represent a constraint for the profitability of the banking system. Another prudential consequence was the natural increase of minim required reserves held at National Bank of Romania for foreign currency.

Adequate capitalization of the banking system represents a key measure for the prevention and mitigation of Romania's banking sector risks. The solvency ratio of banking sector has remained above 11.85% percent ever since 2007, level which is above the EU-regulated threshold of 8 percent and above to the 10 percent minimum prudential level set by the NBR. Banks' liquidity position remained adequate. In this context, Romania's banking system perspectives are uncertain and subject to considerable risks. As far as I am concerned, the solutions should be directed to a permanent monitoring of the banking system. The research utility consist in identification of vulnerabilities and threats, whose addition in the policy measures can contributing to cost mitigation occurred for Romania's economic, financial and banking system.

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